

REMARKS

Claims 1 through 20 are pending in the case.

Claims 1 through 20 have been rejected.

Claims 1, 8 and 15 have been amended.

Rejection of claims

Examiner has rejected claims 1 through 20 under 35 U.S.C. § 103 (1) as being unpatentable over US 2002/0054220 A1 (Takeuchi) in view of USPN 6,940,556 (Tamune). Applicant has amended the independent claims to emphasize how the claimed subject matter differs from the cited art. Applicant respectfully traverses the rejection as to the claims as amended.

Below, Applicant specifically addresses the new arguments raised by Examiner and discusses subject matter in the independent claims 1, 8 and 15 not disclosed or suggested by Takeuchi or Tamune. On the basis of this, Applicant believes all the claims are patentable over the cited art.

Discussion of Independent Claim 1

Claim 1 sets out a method that includes capturing an image using a color filter array, and detecting a plurality of color components of light incident upon a color sensor. Each color component is an amplified signal from one and only one photo sensor dedicated to generating the color component. This is not disclosed or suggested by Takeuchi or Tamune.

For example, Tamune discloses an image capturing device for scene analysis 86. Since image capturing device for scene analysis 86 is required to capture an image, it has to have the ability to capture many pixels of image information. For example, Tamune indicates image capturing device for scene analysis 86 is constituted of a two-dimensional CCD having 480 separate pixels provided over 24 columns (across) by 20 rows (down). See Figure 3. Tamune does not disclose or suggest detecting a plurality of color components of light incident upon a color sensor where each color component is an amplified signal from one and only one photo sensor dedicated to generating the color component, as set out in independent claim 1 of the present case.

Examiner has taken official notice that providing an amplifier on a CCD imager, which amplifies R, G and B values as they are transferred out of the device, is well known and expected in the art. However, merely providing some signal amplification with a CCD does not disclose the specific limitations set out in claim 1.

Specifically, claim 1 indicates that each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*. An average intensity value is generated for each of the plurality of color components. This is not well known and expected in the art. If Examiner believes this is the case, Examiner is requested to document this.

For example, Tamune discloses a CCD that has 480 separate pixels, as shown in Figure 3. The 480 pixels are grouped into 16 blocks (B11-B44). Each of the 16 blocks has 30 pixels. See Tamune at column 5, lines 30 through 46.

Tamune uses Figure 8 to explain the procedure that is taken to calculate the R gain and the B gain to be utilized for white balance adjustment. In step S31, electrical charges achieved by the subject light received at the image capturing device for scene analysis 86 are accumulated over a specific length of time, and then the RGB image data for scene analysis are sequentially output to the scene analyzing circuit 10. In step S32, matching processing, in which the difference in the color characteristics between the image capturing device for scene analysis 86 and the image capturing device for photographing 73 is performed. In step S33, using the RGB signals (brightness values) corresponding to all the 480 pixels, an R gain full pixel average value Rgave and a B gain full pixel average value Bgave are calculated. In step S34, R gain block average values Rgave1-Rgave16 and the B gain block average values Bgave1-Bgave16 for the 16 individual blocks B11-B44 are calculated. These and other calculated values are then used to calculate the R gain and the B gain for white balance. See Tamune at Figure 8 and column 7, line 25 through column 8, line 44.

Tamune does not disclose or suggest that an average intensity value is generated for each of a plurality of color components where each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*, as set out in claim 1 of the present case. Rather, in Tamune, an R gain full pixel average value Rgave and a B gain full pixel average value Bgave are calculated using the RGB signals (brightness values) *corresponding to all the 480 pixels*. See Tamune at column 7, lines 39 through 42.

Thus Tamune does not disclose or suggest the subject matter of claim 1

where an average intensity value is generated for each of a plurality of color components where each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*. Tamune uses all 480 pixels to generate R and B gain full pixel average values. Applicant's use of *one and only one photo sensor dedicated to generating the color component* is not disclosed or suggested by Tamune.

Discussion of Independent Claim 8

Claim 8 sets out a device that takes an image. The device includes a color filter array that captures an image. The device also includes a color sensor that detects a plurality of color components of incident light. The color sensor includes for each color component one and only one photo sensor that generates a signal that is amplified to produce the color component. This is not disclosed or suggested by Takeuchi or Tamune.

For example, Tamune discloses an image capturing device for scene analysis 86. Since image capturing device for scene analysis 86 is required to capture an image, it has to have the ability to capture many pixels of image information. For example, Tamune indicates image capturing device for scene analysis 86 is constituted of a two-dimensional CCD having 480 separate pixels provided over 24 columns (across) by 20 rows (down). See Figure 3. Tamune does not disclose or suggest a color sensor that includes for each color component one and only one photo sensor that generates a signal that is

amplified to produce the color component, as set out in independent claim 8 of the present case.

Examiner has taken official notice that providing an amplifier on a CCD imager, which amplifies R, G and B values as they are transferred out of the device, is well known and expected in the art. However, merely providing some signal amplification with a CCD does not disclose the specific limitations set out in claim 8.

Specifically, claim 8 indicates that each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*. An average intensity value is generated for each of the plurality of color components. This is not well known and expected in the art. If Examiner believes this is the case, Examiner is requested to document this.

Tamune does not disclose or suggest that an average intensity value is generated for each of a plurality of color components where each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*, as set out in claim 8 of the present case. Rather, in Tamune, an R gain full pixel average value R_{gave} and a B gain full pixel average value B_{gave} are calculated using the RGB signals (brightness values) *corresponding to all the 480 pixels*. See Tamune at column 7, lines 39 through 42.

Thus, Tamune does not disclose or suggest the subject matter of claim 8 where an average intensity value is generated for each of a plurality of color components where each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*. Tamune uses all 480

pixels to generate R and B gain full pixel average values. Applicant's use of *one and only one photo sensor dedicated to generating the color component* is not disclosed or suggested by Tamune.

Discussion of Independent Claim 15

Claim 15 sets out device that takes an image. The device includes a color filter array means for capturing an image. The device also includes a color sensor means for detecting a plurality of color components of incident light. The color sensor means includes for each color component a single photo sensor that generates a signal that is amplified to produce the color component. This is not disclosed or suggested by Takeuchi or Tamune.

For example, Tamune discloses an image capturing device for scene analysis 86. Since image capturing device for scene analysis 86 is required to capture an image, it has to have the ability to capture many pixels of image information. For example, Tamune indicates image capturing device for scene analysis 86 is constituted of a two-dimensional CCD having 480 separate pixels provided over 24 columns (across) by 20 rows (down). See Figure 3. Tamune does not disclose or suggest a color sensor means that includes for each color component one and only one photo sensor that generates a signal that is amplified to produce the color component, as set out in independent claim 15 of the present case.

Examiner has taken official notice that providing an amplifier on a CCD imager, which amplifies R, G and B values as they are transferred out of the

device, is well known and expected in the art. However, merely providing some signal amplification with a CCD does not disclose the specific limitations set out in claim 15.

Specifically, claim 15 indicates that each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*. An average intensity value is generated for each of the plurality of color components. This is not well known and expected in the art. If Examiner believes this is the case, Examiner is requested to document this.

Tamune does not disclose or suggest that an average intensity value is generated for each of a plurality of color components where each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*, as set out in claim 15 of the present case. Rather, in Tamune, an R gain full pixel average value R_{gave} and a B gain full pixel average value B_{gave} are calculated using the RGB signals (brightness values) *corresponding to all the 480 pixels*. See Tamune at column 7, lines 39 through 42.

Thus, Tamune does not disclose or suggest the subject matter of claim 15 where an average intensity value is generated for each of a plurality of color components where each color component is an amplified signal *from one and only one photo sensor dedicated to generating the color component*. Tamune uses all 480 pixels to generate R and B gain full pixel average values. Applicant's use of *one and only one photo sensor dedicated to generating the color component* is not disclosed or suggested by Tamune.



Conclusion

Applicant Seela Raj D Rajaiah has placed the present application in condition for allowance and favorable action is respectfully requested.

Respectfully submitted,
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